

*Bronson (E. B.)*

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Origin of Type in Disease

BY  
EDWARD BENNET BRONSON, M.D.  
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*Reprinted from the MEDICAL RECORD, October 15, 1892*

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NEW YORK  
TROW DIRECTORY, PRINTING AND BOOKBINDING CO.  
201-213 EAST TWELFTH STREET  
1892





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GENTLEMEN : I have the honor of welcoming you to this Sixteenth Annual Meeting. Of the pride that one feels whose office it is to preside over the deliberations of this Association, the pioneer of its kind among the nations and the peer of the worthiest of its successors, you need no assurance. The honorable history and achievements of the American Dermatological Association in the past give promise of a future still more brilliant, with achievements ever and ever greater.

Dermatology, that is, the study of affections of the cutaneous surface as distinct from those known as internal diseases, boasts of a high antiquity. The striking appearance of the skin affections, together with the readiness with which they were observed naturally, made them objects of special interest and of particular study. But, like the study of the stars in early times, it was at first little more than an enumeration of phenomena. The anomalies were seen and recorded, but in what they consisted, how and whence they arose, were questions that

<sup>1</sup> An address delivered before the American Dermatological Association, at Pequot, September 13, 1892.

received only vague and fantastical answers. The history of dermatology furnishes an epitome of the progress of medical science through the ages. We have emerged from much of the mysticism of the past, but our gaze is not yet clear, and ever new phenomena are crowding upon our vision. No one can say we have not progressed, though neither the abundance of our literature nor the variety and intricacies of our nomenclature of themselves attest this progress. They are often but the dust and smoke of the conflict that we know is going on underneath. Though the accumulation of data is important, the mere recording of new disease manifestations has but little significance except to the specialist. It is true our field of operation is a vast one. We see more than the student of internal diseases, and the impulse is natural to tell what we see, and, what is more, make haste to give it a name. But as in astronomy it is not held the highest achievement to record the discovery of a new nebula, so the industry of describing a new kind of pimple or a strange rash is but a slender contribution to medical science. It is the contribution of organized knowledge that entitles the specialist to honor; to offer only data and names is to hide our talent in a napkin.

In their grouping and mutual relations the efflorescences of a skin disease may be compared to the starry constellations; but in dermatology as in astronomy, the observation of these visible signs is but preliminary to profounder studies and calculations. When we see a meteor flashing across the sky, the phenomenon does not reveal what the thing is except inferentially. When we see blood gushing from some point on the surface of the body, our inference is that a solution of continuity has occurred. The gushing blood is not the essential fact, nor yet the appearance of the gaping wound, except as they imply a sudden and violent division of tissues normally coherent and intact. I believe that every anomaly should be capable of reduction to such like simple terms. As the term anomaly implies, it is some departure from



normal conditions. But what is that departure? A change has taken place. A change of what? We see the result, the accomplished fact; we may describe the lesion with all circumspection; we may give its minutest anatomy, even determine its remotest cause, and yet the question remain unanswered. The study of any phenomena, whether normal or abnormal, only reaches its legitimate conclusion when brought within the purview of scientific knowledge. The anomaly of the flashing light in the sky ceases to be an object of study the moment its meteoric character is recognized and it fits its place in known cosmic law. The study of any morbid effect in the living body is not ended till tracked to its point of departure in the normal, anatomical, and physiological facts.

Strictly speaking, an anomaly in the organism of the body is not necessarily disease, though a disease is always an anomaly. Such anomalous conditions as effect variation in species and higher development are in no sense diseases. It is only when the anomaly impairs or debases life that it can be regarded as a disease. As commonly employed the word disease always suggests the idea of a more or less complicated process. In most cases the anomaly, *per se*, is not immediately apparent. We see a collection of symptoms which are the effects, the obvious signs of a series of reactions, and this series constitutes the process. By tracing this process to its inception we arrive finally at the anomaly, the primary change or changes that is the essence of the disease.

Every change in the actions of life, whether normal or abnormal, is the resultant of incident and inherent forces. When these forces are all so co-ordinated as to preserve the integrity of the part the result is health, the excess of force going to the promotion of growth and development. It is this ability to appropriate power from external sources that gives life its most distinctive characteristic. When this ability fails, when the inherent power of co-ordination and adaptation is unequal to the external dis-

turbing force the result is disorder, disintegration, disease, or death.

While integration is the normal end and purpose of vital action it by no means follows that disintegration is abnormal and morbid. The one is apparently as essential a factor in life as the other. Vital action is a bipolar movement. At the anode is integration—growth; at the cathode disintegration—decay and death. One would seem to be the necessary complement of the other. The conflict of forces is never-ceasing; the old, the weak, and the unfit are continually falling by the way. There is never equilibrium, never rest. One might fancy an ultimately perfected state of life with an organism so exactly adjusted to external influences as to remain immobile and impassive under the shock of every exterior force—a crystallized living being, motionless and emotionless as a sphinx. But the only living existence of which we are cognizant is in a perpetual struggle, with inevitable defeat at the end. Its greatest gain is that temporary advantage of inherent over exterior forces that enables a unit to repair its losses or produce another unit to take up the struggle and so perpetuate it through an infinite series.

To distinguish between that disintegrating tendency that seems to be necessary, and therefore normal, and that which is abnormal and is known as disease, is not always easy. There are normal processes of involution that closely resemble certain morbid conditions. It is when the involution is anomalous that it becomes disease. An alopecia that begins at an earlier period in life than that in which senile changes usually take place is anomalous, and therefore disease. The same is true of those changes in the economy which represent excessive or perverted development rather than impairment. When the exterior forces present themselves in the form of a local cutaneous irritation, as from long-continued friction, the interior forces adapt themselves to the new condition by the formation of a callus. The newly developed energy is ex-

pended in formative action. Otherwise the resultant would be disintegration with erosion, or vital derangement with inflammation or ulceration. The callus is a normal kind of auxesis that is compensatory to the excess of incident force. When a similar auxesis, as, for example, in tyloma, is the result purely of deranged interior forces, the local change is disease because anomalous. Is it not probable that in every instance of malformation and new-growth an excessive development of force presented as a local irritation is met by ill-directed or inadequate efforts at compensation? So long as the power of adjustment and adaptation is orderly and normal there is health. When the reverse of this obtains there is disease.

Anomalous action being the starting-point of all disease, how is it possible to unravel all the ensuing complications so as to reach the original anomaly. Disease is like a tangled skein, in which each strand becomes a separate element of disorder acting upon all the others and in turn being reacted upon, is torn apart and reunited, making multitudinous false connections in an infinite complexity. Through all these successive complications to trace our way to the original fault, the first twist in the tangled skein, seems an almost hopeless task. We need an Ariadne's clew to thread this maze of disease with its complex symptoms and pathological changes, a clew that leads to the primary change that is the source and origin of all the disorder.

There is a certain order and consecutiveness in the phenomena of disease that show that all is not confusion and accident. Furthermore, diseases for the most part occur in conformity with certain fixed and ever-recurring types. The typical character depends less upon the nature of the extraneous influences than upon tendencies that are inherent, upon conditions that are predetermined. The morbid unravelling of the normal processes and products of growth is in effect but a reversion of the course of normal development. Blurred and indistinct



as is the image, disease is the negative picture of healthy life. Disintegration is always conditioned by the laws of integration. There is method in anarchy ; there is law even in chaos.

Essentially, then, disease is not an entity. Its original motive may come from some entity without, but the cause which is most essential and which we would seek is inherent. The Minotaur of our pursuit is not the monster roaming the earth, seeking whom it may devour, but that element of disorder in the organism itself which is a necessary condition of our existence, a heritage of life. Ariadne's clew is Nature's law.

If there be a law of reversion governing disintegration and disease, then those elements of life which are at the summit, those which are the highest, and therefore the latest products of development, would naturally be the first to suffer injury. The disorder should first manifest itself in impairment of the highest function of the part concerned, then, by changes of structure, each successive change affecting structures lower and lower in the scale of development till, finally, the part either relapses into its most primitive or embryonic form or suffers total dissolution and extinction. And in general this accords with experience. There are, however, certain apparent deviations from this law that demand explanation.

In the first place, one of the earliest effects of anomalous action in the organism is often an exaltation of nervous or functional energy, either at the part affected or vicariously at some other point. It is clearly the effect of derangement in the vital forces. War is declared in the economy, with accumulation of forces at one point, while there is corresponding depression at another. It is a false kind of energy, an excitement that tends to rapid exhaustion. In inflammation and fever, where this false energy is most pronounced, the dissipation of force and the tendency to disintegration are most rapid.

Again, apparent deviations from the law of reversion in disease are met with which have their origin in certain



primary conditions of development. It often happens, on the one hand, that where tendencies to disintegration or degeneration are at work those parts which are the most highly organized do not succumb first, as the statement of the law might lead us to expect. It is a well-known fact that the more highly differentiated an organism or an organ is, the greater its inherent power of resistance to injurious forces or influences from without. In social organizations those regulations, customs, arts, and practices of amenity that through long cultivation have become firmly established may continue long after the material prosperity has begun to deteriorate ; while in a community where similar products of civilization are only nascent, have but just begun to develop, these are the first to become extinct, and their disappearance is the very first symptom of a relapse into savagery. So in the functional and organic life of the body we see organs or complex structures so highly developed and differentiated from the surrounding parts as to acquire a certain autonomy of action, and when they become involved in a morbid process their integrity may be preserved long after the less favored tissues surrounding them have suffered serious injury. Nevertheless, even in these cases, when the process of deterioration once begins in these higher structures there is reason to believe that reversal law asserts itself and pursues its usual course, proceeding from above downward.

This course is probably not always, perhaps rarely, a perfectly regular one. The reverse would be the case were the course of development always regular and all of its products absolutely perfect. But throughout the bodily mechanism with its various systems, apparatus, organs, and tissues, there is an indefinite but surely vast number of defects and imperfections even in the best organized individuals. They constitute the *loci minoris resistentiæ*. They are the counterpart of those highly organized elements of the body referred to above, and which we might term, for the sake of contrast, *loci majoris resistentiæ*.

It is the less resistant, the weaker spots of the body, that are the most vulnerable. They play a very important part in disease both at its inception and throughout its subsequent course. They are to a certain degree peculiar to the individual, though in much greater degree to the race and to the species. Hence while these morbid tendencies of special parts of the organism modify, and, to a certain extent, interfere with the regular operation of the reversional law of disease, they none the less contribute to uniformity in type, and a knowledge of them would furnish us with a most important clew.

The inherent susceptibility of the tissues is a factor in disease to which I believe insufficient attention is given. Especially in this period of elevation of the parasitic germ as the all-important element in disease is the part played by a defective organism often overlooked. Thus so long as we feel sure we have established an etiological identity between lupus and tuberculosis it seems as though it mattered little what responsibility attaches to the inherent defects of the affected part. All the blame is cast on the peccant bacillus, while the lurking vice in the tissue that invites it to its bed goes without notice. Every disease rests on a tripod of factors, to wit: First, The primary injury, representing the incident force; second, the susceptibility of the part, which stands for the inherent and resisting force; and third, the pathological effect, which is the resultant. To ignore any one of these factors leaves a very unstable basis for pathological study, and however true may be the conclusions arrived at, it stops short of the whole truth.

As stated above, susceptibilities to disease having their origin in defects or errors of development, and seldom peculiar to the individual, but occurring in greater or less degree in the same form throughout the entire human family, are largely accountable for the typical characters which most diseases assume. Taking that portion of the organism that more especially interests us, we see over and over again recurring the same morbid reactions.

Thus, for example, in the mucous layer of the skin we see constantly recurring those morphological changes that produce the types of disease known as eczema, herpes, and pemphigus. The original perturbing influence may emanate from widely differing sources. It may be an effect of morbid changes at remote parts of the body, or even in the vehicles of transmission, but whatever be its source its interpretation in the skin is restricted to a limited number of reactions. The different sets of reactions of which the skin is susceptible constitute its typical diseases.

The diseases of the skin at present recognized as typical are comparatively few in number. It is not improbable that there are others remaining still unrecognized. Moreover, the recognized ones will doubtless, as time goes on, be found divisible into types more and more restricted. But aside from these there must be a vast number of reactions that are exceptional or peculiar to the individual. When strange phenomena of disease are met with there is a natural inclination to connect them with one or another of the established types, according to real or fancied resemblances. In some cases, doubtless, such phenomena represent new and atypical forms of disease. The atypical character here referred to is that which relates purely to the form of the reaction at the point affected, the morphology of the local lesion. There may be an exaggerated or unusual susceptibility to morbid action, commonly known as idiosyncrasy, but the reactions upon the affected tissue correspond ordinarily to one of the recognized morphological types. The exceptional tendency to urticaria is such an idiosyncrasy, and yet the local lesion or efflorescence is a typical form of reaction, and the particular anomaly that gives rise to it is doubtless identical with that in every case of urticaria. On the other hand, a bullous or a hemorrhagic urticaria represents a divergence from the typical form, or rather a mixture of types. The vesiculation, the hemorrhage, and the wheal, each is typical of its kind and the only diver-

gence is in the unusual combination. It is the same in an advanced case of eczema. Though the reaction in the rete is, as I believe, the essentially typical one for that disease, there become conjoined with it in the course of the morbid process other and secondary reactions, producing a complex result with polymorphous characters. But even here there is nothing irregular, not an effect that with full knowledge of the incident and resistant forces could not be predicated.

When among the composite effects of any disease no one can be singled out as essentially the lesion of the disease, the type of reaction remains obscure and the classification of the affection is difficult. Thus, in that interesting series of cutaneous phenomena described first by our distinguished colleague under the name dermatitis herpetiformis, the skin affections present a mixed morphological type that is difficult to characterize. The disease in its totality shows distinctly marks of a neuropathic character, and so far as the central reactions are concerned it may conform to some definite pathological type. But its expression upon the skin can scarcely be regarded as a typical dermatonosis. The only feature that appears to be constant in all attacks of the skin is the herpetiform grouping of the efflorescences. But this feature is by no means peculiar to the disease under consideration. It is an effect of a neurotic influence which we see often exhibited, not only in the herpetic diseases strictly so called, but in the exanthems of syphilis, in pemphigus, in lichen, and even in universal eczema. But whereas in each of these diseases we have effects produced in the skin that are fixed and constant, one typical for each one, in dermatitis herpetiformis the cutaneous reactions are for the most part vague and undefined, as it were a nebula of disease that has not yet settled into any regular type or form of morphological change.

The susceptibility to disease is never constant. It is ever shifting with the stage of development or with the age of the individual. The weak points differ at differ-



ent periods of life, and probably at different periods in the history of the race. It is probable that certain diseases or disease-manifestations that are recognized to-day did not exist in former ages, and conversely, many of those that existed formerly are unknown now, and that not only because of variation in the causes of disease, however important a factor that may be, but largely because the susceptibilities vary at different grades and phases of development. Though the primary cause remains the same, syphilis is a very different disease in the infant from what it is in the adult. It is probably not the same disease now that it was in the fifteenth century. In the young child those features of the disease that are recognized as typical in the adult are obscured by a multitude of incidental reactions which undoubtedly reflect the imperfections and greater susceptibilities of the undeveloped infant organism. In how far a similar explanation would apply to the peculiar manifestations of syphilis described by early writers, it is difficult to say, but it is at least as fair a one as that which would ascribe them to ignorance of the disease or to lack of careful observations.

But notwithstanding there is this tendency to variation in the susceptibilities of the skin to disease, its reactions, conditioned as they are by the laws of tissue evolution and involution, preserve a certain uniformity of type throughout the ages of man and throughout the generations. It is not only that uniformity which the different constitutional diseases exhibit in the sequence of their morbid phenomena, where a central disturbance transmits disorder to many separate divisions of the organism, but that which applies to the anomalous changes or lesions to which these separate divisions are severally subject, and more especially such special and more or less independent divisions as the skin or certain of its component parts. Whatever be the source of disturbance in the skin, whether external or internal, traumatic, septic, parasitic, or neurotic, when it produces disease it does so

simply as a perturbing agent, deranging the normal autonomy of the part and overwhelming the inherent power of resistance, that is, the power to convert the deranging force into normal formative action. When the deformative action that is the result has a typical character, it owes it therefore less to the source of the perturbing force from without than to the previous qualities and constitution of the affected part.

But, gentlemen, I am conscious that I have too long delayed the progress of your transactions by these abstract introductory remarks. I now take pleasure in inviting your attention to matters of livelier interest and of more practical concern.



